

Efficient Swiss Needlecast Management Field Trial Research

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Abstract:

Douglas firs have been an important part of NY Christmas tree and Nursery Production. Recently they have fallen out of favor due primarily to the perceived need to spray several times in the spring to prevent a needlecast disease. However, there is strong evidence to show that Douglas firs can be grown without many of the sprays currently being applied. With reduced spray requirements, the Douglas fir would be economical to grow and contribute diversity among the evergreen plantings that are important for a robust industry. Through research and demonstration, this project is showing that Douglas fir can be grown successfully with fewer sprays.

Project Justification:

Evergreen tree farming on nurseries and Christmas tree farms is a multi-million-dollar industry in temperate regions of the U.S.; providing trees for decoration and live specimens for transplant. In the most recent USDA Census of Agriculture, NYS is seventh in the U.S. for Christmas tree producers (844 farms) and total trees harvested (348,043 trees); with an estimated farmgate and consumer retail value of \$8.8 and \$14.2 million, respectively. Douglas fir trees are adaptable to various soil conditions, are relatively quick growers and over the last 20 years contributed to the success of the Christmas tree industry in New York. However, Christmas tree farmers in NY and elsewhere in the Northeast are increasingly moving away from Douglas fir because of the high costs and labor requirements for pesticide applications to manage needlecast diseases.

The NYS IPM program ornamental crops program conducted a survey of Christmas tree growers at the CTFANY Conference in January of 2014.

Survey Results:

- 69% of the growers indicated that the number of Douglas fir they planted over the last ten years has decreased
- 80% of the growers feel there still is a good market for Douglas fir
- 74% of the growers indicated that problems with needlecast caused them to reduce or eliminate Douglas fir plantings.
- Some direct comments written on the survey by growers
- "They are a high maintenance tree with spraying for needlecasts but I have customers that insist on Douglas."
- "Douglas Fir great tree. Need fewer sprays or more resistance strains."
- "Not worth growing Douglas fir due to time involved in spraying."
- "Would love to grow however lost too many trees in past and don't want to risk time and money."

- "Customers like them and our ground supports them well."

Summary

Grower opinion indicates Douglas fir still has a role in the NY Christmas tree industry. Keeping Douglas fir in the mix of tree species grown in NY increases field diversity and reduces the exposure growers may face from insect, disease and environmental problems. We believe that this project can demonstrate that healthy Douglas fir trees can be grown with half of the 3, 4 or more sprays for needlecast diseases that the majority of growers report using. The reduction is anticipated based on research on the fungus that causes the disease and studies conducted in the Pacific Northwest where large numbers of Douglas firs are grown for lumber and Christmas tree industries where a single spray has worked to achieve good control. The climatic conditions in that region are similar enough so that we expect their results can be replicated here.

Since the cost to spray Douglas fir can range from \$50 to \$80 or more per acre eliminating even two sprays a year could save growers \$500 per acre in the years it takes to bring the trees to a salable size.

Procedures

Treatments were made to tagged branches on four trees. Treatments were replicated so each tree was an entire experimental unit.

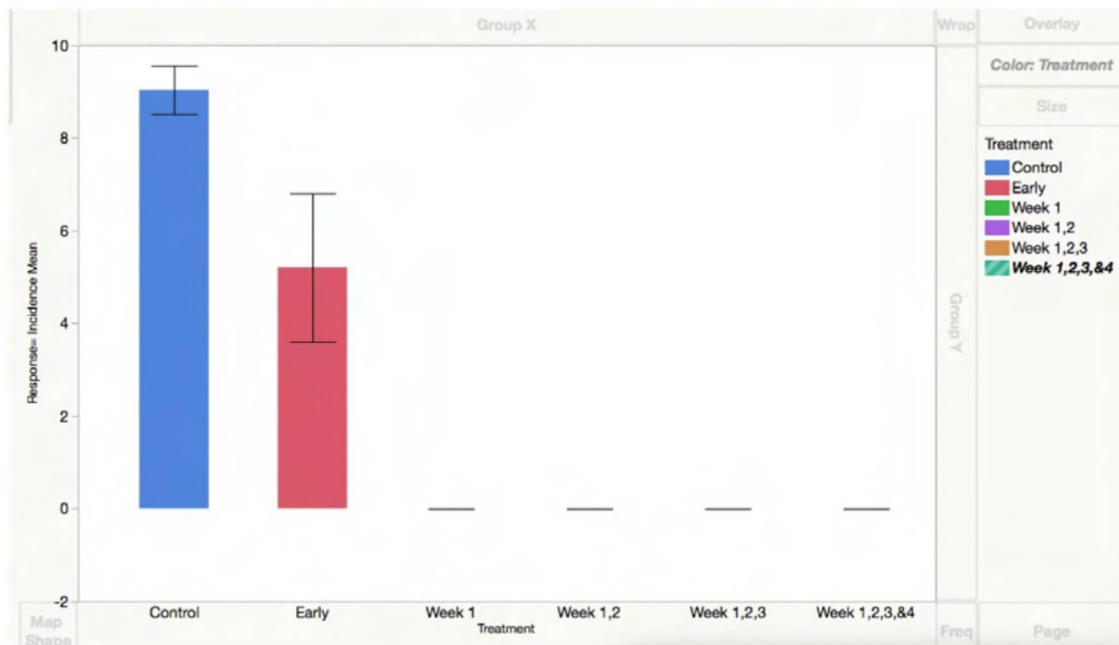
2015 Douglas Fir Treatments Springwater NY

Date	Days from last treatment	Treatment Applied
5/14/2015		Applied single early treatment to trees. Very early after bud break.
5/21/15	0	1 st Spray in series of 4
6/2/15	12	2 nd Spray in series of 4
6/13/2015	11	3 rd Spray in series of 4
6/26/2015	13	4 rd Spray in series of 4

Results & Discussion

Results of the 2015 treatments were rated in May of 2016.

A graph of the preliminary data is below.



The control water treatment had approximately 90% disease incidence. When a single treatment was applied at about 50% bud break disease incidence was reduced to about 50%. When a treatment was made at an average of 1 inch shoot elongation zero disease incidence was achieved and maintained at with additional treatments.

Samples from the 2016 treatments will be collected, read and analyzed in May of 2017. In 2017 we also plan to continue this work with other fungicides in addition to Chlorothalonil.